AMENDMENTS TO THE CLAIMS:

1. (Currently Amended) An apparatus for emitting radiant energy, comprising:

an integrating cavity, having a diffusely reflective interior surface and an aperture for allowing emission of combined radiant energy;

a plurality of sources of radiant energy coupled to supply radiant energy into the interior of the integrating cavity;

wherein each of the sources emits radiant energy of a different wavelength, and the combined radiant energy emitted through the aperture includes ~~the~~ radiant energy of the different wavelengths; and

control circuitry coupled to the sources for establishing output intensity of radiant energy of each of the sources to set a spectral characteristic of the combined radiant energy emitted through the aperture.

2. (Original) The apparatus of claim 1, further comprising a deflector having a reflective inner surface coupled to the aperture to deflect at least some of the combined radiant energy.

3. (Original) The apparatus of claim 2, wherein the deflector comprises a conical deflector comprising:

a small opening at a proximal end of the conical deflector, coupled to the aperture of the integrating cavity;

a larger opening at a distal end of the conical deflector; and

a specular interior surface between the distal end and the proximal end.

4. (Original) The apparatus of claim 2, wherein at least a substantial portion of the reflective interior surface of the deflector exhibits specular reflectivity with respect to the combined radiant energy.

5. (Currently Amended) The apparatus of claim 1, wherein the plurality of sources comprises:

one or more light emitting diodes for emitting light of a first color; and

one or more light emitting diodes for emitting light of a second color, wherein the second color is different from the first color.

6. (Currently Amended) The apparatus of claim 5, wherein the plurality of sources further comprises one or more light emitting diodes for emitting light of a third color different from the first and second colors.

7. (Original) The apparatus of claim 6, wherein the first, second and third colors are red, green and blue, respectively.

8. (Original) The apparatus of claim 6, wherein the plurality of sources further comprises one or more light emitting diodes for emitting light of a fourth color different from the first, second and third colors.

9. (Original) The apparatus of claim 5, wherein:

the one or more first color light emitting diodes comprise an initially active light emitting diode for emitting light of the first color and an initially inactive light emitting diode for emitting light of the first color on an as needed basis; and

the one or more second color light emitting diodes comprise an initially active light emitting diode for emitting light of the second color and an initially inactive light emitting diode for emitting light of the second color on an as needed basis.

10. (Original) The apparatus of claim 5, wherein the control circuitry comprises:

a color sensor responsive to the combined radiant energy; and

logic circuitry responsive to color detected by the sensor to control output intensity of the one or more first color light emitting diodes and intensity of the one or more second color light emitting diodes, so as to provide a desired color distribution in the integrated radiant energy.

11. (Original) The apparatus of claim 10, wherein:

the one or more first color light emitting diodes comprise an initially active light emitting diode for emitting light of the first color and an initially inactive diode for emitting light of the first color on an as needed basis; and

the one or more second color light emitting diodes comprise an initially active light emitting diode for emitting light of the second color and an initially inactive diode for emitting light of the second color on an as needed basis.

12. (Original) The apparatus of claim 11, wherein the logic circuitry is responsive to the detected color to selectively activate the inactive light emitting diodes, as needed to maintain the desired color distribution in the integrated radiant energy.

13. (Original) The apparatus of claim 10, wherein:

the apparatus further comprises a temperature sensor, and

the control circuitry selectively activates the inactive light emitting diodes as needed, in response to sensed variations in temperature.

14. (Original) The apparatus of claim 1, wherein:

the apparatus further comprises a temperature sensor, and

the control circuitry is also responsive to the sensed temperature.

15. (Currently Amended) The apparatus of claim 1, wherein the control circuitry comprises means for manually defining a desired color distribution.[[.]]

16. (Currently Amended) The apparatus of claim 1, wherein the control circuitry comprises a data interface for receiving data defining a desired color distribution.[[.]]

17. (Original) The apparatus of claim 1, wherein the control circuitry comprises means for pre-setting the desired color distribution.

18. (Original) The apparatus of claim 1, wherein the integrating cavity is formed of a diffusely reflective plastic material.

19. (Original) The apparatus of claim 18, wherein the diffusely reflective plastic material is a molded plastic, comprising polypropylene and having a 98% reflectivity.

20. (Original) The apparatus of claim 1, wherein the integrating cavity comprises a rigid substrate having an interior surface, and a diffusely reflective coating layer formed on the

interior surface of the substrate so as to provide the diffusely reflective interior surface of the integrating cavity.

21. (Original) The apparatus of claim 1, wherein the diffusely reflective interior surface of the integrating cavity has a shape corresponding to a substantial portion of a sphere.

22. (Original) The apparatus of claim 21, wherein the shape corresponds to a hemisphere.

23. (Original) The apparatus of claim 1, wherein the integrating cavity comprises a base, a mask separated from the base, and a cavity formed in at least one of the base and the mask, wherein:

opposing surfaces of the base and mask exhibit a diffuse reflectivity, and

the mask is sized and positioned relative to the base so as to constructively occlude an active region of the base.

24. (Original) The apparatus of claim 1, wherein the diffusely reflective interior surface of the integrating cavity has a shape at least a portion of which corresponds to a substantial portion of a cylinder.

25. (Original) The apparatus of claim 1, wherein intensity of the combined radiant energy emitted through the aperture is of a level for use in a lumination application.

26. (Original) The apparatus of claim 1, wherein intensity of the integrated radiant energy emitted through the aperture is of a level sufficient for task lighting.

27. (Original) The apparatus of claim 1, wherein the cavity has a plurality of openings at points on the interior of the cavity, and the plurality of sources are positioned to emit radiant energy directly into the interior of the integrating cavity through respective ones of the openings.

28. (Original) The apparatus of claim 1, further comprising a plurality of optical fibers coupled between the sources and the integrating cavity to supply radiant energy from the sources to the interior of the cavity.

29. (Original) The apparatus of claim 1, wherein radiant energy from the sources enters the cavity at points on the interior surface of the integrating cavity, and the points are not directly visible through the aperture.

30. (Original) A system comprising:

a plurality of apparatuses for emitting radiant energy, each as specified in claim 1; and

a master controller coupled to the control circuitry of each of the apparatuses, for providing a common control of all radiant energy emissions by the apparatuses.

31. (Original) The system as in claim 30, wherein the plurality of apparatus are arranged side by side in a two-dimensional array.

32. (Original) An apparatus for emitting radiant energy of multiple wavelengths comprising:

a plurality of first light emitting diodes (LEDs) for emitting radiant energy of a first wavelength, at least one of the first LEDs being initially active and at least one other of the first LEDs being initially inactive;

a plurality of second LEDs for emitting radiant energy of a second wavelength different from the first wavelength, at least one of the second LEDs being initially active and at least one of the second LEDs being initially inactive;

a controller coupled to control operation of the first and second LEDs; and

a sensor arranged to sense at least one condition relating to operation of the apparatus,

wherein the controller selectively activates one or more of the inactive LEDs in response to the condition sensed by the sensor.

33. (Currently Amended) The apparatus as in claim 32, wherein the sensor comprises a color detector responsive to combined output from the first and second LEDs.

34. (Original) The apparatus of claim 32, wherein the sensor comprises a temperature detector.

35. (Original) The apparatus of claim 32, further comprising an integrating cavity for receiving and combining energy from the first and second LEDs, the cavity having an aperture through which the apparatus emits combined radiant energy of the multiple wavelengths.